

**CLAIMS**

1. A device for monitoring tool wear and/or breakage for a machine tool, exhibiting a command module (B) and  
5 a control system (A) for a tool drive motor (M), said device comprising, in a single module (E) through which the three supply phases for the motor (M) pass fully, all the necessary components suitable for measuring the active power and/or the active currents absorbed by the  
10 motor,

characterized in that it integrates means for digital monitoring of tool wear, absence and breakage simultaneously using the power, the energy (integral of the power) and the derivative of the power to detect  
15 any defect (tool fracture, tool absence, poor workpiece positioning or machine defect) in any type of machining operation, in particular in machining operations with several tools on one and the same motor, turning and usage on rough workpieces, by comparison with a  
20 reference curve established during a first machining operation performed by the tool.

2. The device as claimed in claim 1, characterized in that in the module (E), the electrical measurements and  
25 the means for monitoring the tool wear and breakage are galvanically and/or electromagnetically isolated.

3. The device as claimed in claim 1, characterized in that the control system (A) for the tool drive motor  
30 and the module (E) for electrical measurement and for monitoring the tool wear and breakage are integrated into one and the same assembly.

4. The device as claimed in claim 1, characterized in that the command module (B) and the module (E) for electrical measurement and for monitoring the tool wear and breakage are integrated into one and the same assembly.

5. The device as claimed in claim 1, characterized in that the command module (B), the control system (A) for the tool drive motor and the module (E) for electrical measurement and for monitoring the tool wear and  
5 breakage are integrated into one and the same assembly.